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AUTHOR Quesada, Gustavo M.
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ABSTRACT

Personal interviews were conducted in July, 1967, with 315 farm operators in rural Brazil where the local extension service had been in operation for more than four years. Patron-dependence (PD) was described as the subscription to a value system, according to the individual's position in the status structure, which produces dependency at different levels on the local hierarchical structure. It was hypothesized that communication variables are more closely related to agricultural knowledge and innovativeness among low PD than among high PD farmers. The high PD individuals were those with low education, minimal extension agent contact, low functional literacy, lower socioeconomic status, few cosmopolite contacts, minimal mass media exposure, low agricultural knowledge and low innovativeness, and possessed fewer cows. They relied more often on the decision-making abilities of those occupying superior positions in the system. The PD variable correlated negatively, as expected, with both the communication variables and variables on development; it was further shown that the relationship between PD and development was not affected by controls on socieconomic status and social intergration. (Five statistical tables and a 36-item bibliography are included.) (SC)

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THE RELATIONSHIP BETWEEN PATRON-DEPENDENCE, COMMUNICATION AND DEVELOPMENT: A LOOK INTO SOCIAL INTEGRATION AND SOCIO-ECONOMIC CONTROL*

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By
Gustavo M. Quesada**
The University of Texas Medical School at San Antonio

Submitted to: Rural Sociology

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Past research dealing with agricultural development and, psychologically-oriented, modernizing effects shows a consistent link between communication and development*. Rogers (1965) uses communication variables as antecedents variables, time-wise leading toward the agricultural and home innovativeness of Colombian peasants. Unfortunately, research with less known and relatively-isolated populations in developing countries, shows that in some instances, statistical significance can be achieved, this research has yet to account for social significance in terms of the amount of variance explained.

The present paper recognizes structural differences among more and less developed countries, and hypothesizes the suppressor effect of indigenous variables produced by the existent structural differences, not tested by the models developed to test causation and association in the more technologically advanced countries. Thought the present approach emphasizes communication, it is recognized that the frameworks in which diffusion of innovations take place are also of an ecological, economic, political, social, and geographic nature.

PATRON-DEPENDENCE

Patron-dependence is a particular example of the indigenous variables just mentioned. Patronage is backed by strongly internalized values that do not tend to disappear with the disappearance of poverty (Galjart, 1967; and Hutchinson, 1966). Subscription to a value-system, according to the individual's position in the status structure, produces dependency on the local hierarchical structure. Different patrons fulfill dependency-needs at different levels, either in family-relations, work-relations, or

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*For example: Lerner (1958), Frey (1966), Deutschmann (1963), Rogers (1965), and Herzog (1967).

political relations (Fal Borda, 1961; Kenny, 1960; and Montalva, 1964).

As a general trait, patron-dependence relationships are not particular to a single culture (DeKadt, 1967, and Wolf, 1966). Rather, patron-dependence is a wide-spread phenomenon. The Japanese oyabun-kobum (Odaka, 1964; and Bennet and Isino, 1963) employer-employee relationship is a patron-dependent type of relationship as is the Indian jajmani-kami (Kolenda, 1963; and Pocok, 1962) and the Latin American patron-peon relationship (Fals Borda, 1961; and Freyre, 1946).

Figure 1 shows the expected set of relationships between the communication variables (mass media exposure, and interpersonal contacts with cosmopolites), patron-dependence (PD from now on), and the agricultural development variables. It is predicted that extra-system communication is negatively associated with agricultural development (Galjart, 1968, p. 86; and Stewart and Hoult, 1959). Controls on socio-economic status and social integration shall verify the validity of the negative relationship between PD and development.

If low and high PD individuals have different communication behavior, PD could have a suppressor effect in the above relationship. Individuals with a low degree of patron-dependence are, by definition, among those less dependent on the decisions of the local hierarchy. Low patron-dependent individuals are thus expected to impute a higher degree of credibility to extra-system communication channels and, therefore, are among those more likely to accept pro-change messages carried by extra-community channels. On the other hand, individuals with a high degree of patron-dependence are those more dependent upon the selectivity, filtering, and acceptance processes of local influential (patrones). Thus high patron-dependent individuals will place more

credibility in messages carried by local channels than in those carried by extra-systemic channels or sources. On the average, it should take relatively less time for low patron-dependent individuals to acquire knowledge and adopt new ideas than for high patron-dependent individuals who have to wait for these new ideas to be incorporated into the community's ways of living and social norms. Different degrees of credibility should result in different degrees of association between extra-system communication and modernity. Therefore, it is hypothesized that the communication variables will be more closely related to agricultural knowledge and innovativeness among low PD farmers than among high PD farmers.

GEOGRAPHICAL SETTING

The data reported here came from a research project on the Diffusion of Innovations in Rural Brazil. Personal interviews were performed with a sample of 315 farm operators from the state of Minas Gerais, Brazil, during July of 1967. The interviewed farm operators lived in communities where the local extension service (ACAR)* worked for more than four years.**

Minas Gerais was chosen over the other Brazilian states because (1) its economy is mainly dependent upon agricultural production, (2) there is an institutional infra-structure to provide institutional support for such a research endeavor, and (3) the Mineiro farmer is a man-in-the middle between the most backward areas of the North and Northeast of Brazil and the most developed agriculture of Sao Paulo and the other southernmost states of the country.

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*This abbreviation stands for Associaçao de Credito e Assistencia Rural.

**For further information about field operations see Stanfield et al., (1968), Herzog et al., (1968), Whiting et al., (1967), and Quesada (1970).

The state of Minas Gerais had a population of more than 10 million according to the 1960 Census. Its area is larger than Texas and about the size of Spain, but with only a third of Spain's population. Minas Gerais extends from the Atlantic coastal range of mountains as far west as the Central Plateau to the border of the Federal District, where the recently built capital of Brazil, Brasilia, is located. Neighboring states are Sao Paulo and Rio de Janeiro to the south; Espirito Santo and Bahia to the east; Bahia, again, to the north; and Goias, Mato Grosso and the Federal District to the west.

The agriculture of Minas Gerais is transitional. Farmers in the southern regions of the state are relatively more commercialized, producing such market crops as coffee, sugar cane, and tobacco. The more isolated northern areas of the state have primarily a subsistence agriculture based on field crops such as corn, manioc, beans, and rice. Cattle operations are of two types: beef on open ranges in the western regions, and many dairy herds in the central and southern regions nearer to the Rio de Janeiro and Sao Paulo milk markets. Many of the beef cattle are trailed from Minas Gerais, either in terms of the type of crops cultivated on in terms of the ways of handling dairy or beef cattle, is quite similar to farming methods in the rest of Brazil.

MEASUREMENTS

Assuming that values, though not easily measured, are important determinants of human behavior (Kahl, 1968; and Bluhm and Fliegel, 1970), PD was measured via a battery of forced-response items like "Technical help: is it a favor that the government does to the farmer; or is it an obligation that the government

owes to the farmer?* Each item required option between two alternatives, one related to independent behavior and the other indicating subjugation to the local hierarchical system.

The items about freedom of the wives and daughters' were suggested by Fals Borda (1961, pp. 241-265) when he described the paternalism of the colombian peasants. Not allowing married sons to smoke in front of their fathers was mentioned by Galjart (1968, p. 90) in his analysis of the patronic syndrome of Brazilian farmers. Kahl, (1968) obtained a factor called "integration with relatives" with two items very similar with the ones about hiring relatives and desiring a job near relatives. Finally, the items about the occupation of the sons and technical help were dictated by the author's experience with cultural values in rural Brazil.

Scalogram analysis results (shown in Table I) suggest the possibility of linear addition among the items in the analysis. Also, the bell-shappedness and proximity among measures of central tendency of the frequency distribution of scale types indicate certain validity in the assumption warranting for linear additionality.

Communication

Exposure to the mass media means receiving messages that usually are prepared outside of the immediate reference system and are transmitted via non face-to-face channels. Here, the mass media index includes the normalized frequency scores on newspaper or magazine reading, radio listening, TV watching, and correspondency.

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*See Table I for the other surviving items. Though these items aim at PD relationships in the family, with the immediate environment, and with government; the group of items, as a whole, is slightly biased in taping the dependency within the traditional family organization (Galjart, 1968, p. 90; Freyre, 1961, p. 70, Rosen, 1962; and Leeds, 1964).

Interpersonal contact with cosmopolites records the ponderated frequency of interaction with persons not belonging to the same social system, i.e., not living in the same community.

Agricultural Development

Gutenschwager (1969) identifies the mental stages of the individual adoption process as: perception, learning and performance. Accurate knowledge is required for accurate performance. Behavioral scientists have defined innovativeness as the degree to which an individual is relatively earlier than other members of his social system in adopting new ideas (Rogers, 1962, p. 20), and innovativeness has been used as a measure of farming improvement. Nevertheless, such measurements fail to take into consideration the degree to which an individual may discontinue an innovation after its adoption due to insufficient accurate knowledge. It is believed that by introducing (1) discontinuance of innovations as well as their adoption* and (2) some measurement of knowledge of innovations, good single indicators of rational behavior, shall be obtained - assuming that knowledge, adoption and continued use of innovations represent successful ways of coping with change in the environment. Both, agricultural knowledge and agricultural innovativeness refer to a set of practices recommended by ACAR (Quesada, 1970, pp. 73-78).

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*The assumption here is that control over the environment is achieved by rational behavior and that, sometimes, rejecting an innovation while in possession of accurate knowledge about it might be more rational than adopting the same innovation without adequate knowledge about it, and then to have to discontinue it because of its impracticality (for further elaboration on this notion of "symbolic adoption", see Klonglan and Coward, 1970, and Presser, 1969).

Control Variables

Individuals with higher rank and greater integration in the social system should be among those who conform to the norms of the system. Socio-economic status, (SES from now on) is the possession of physical objects, that put an individual in a higher or lower position in relationship to his peers. Respondents were asked about possessions of about a set of seven household items (water filter, plumbing, electricity, radio, inside bathroon, motorized vehicle, and house in town)*. These items require economic capital to acquire them, and since these are not new to the studied communities, we perceive them closer to a measure of SES than home innovativeness. The addition, of these scores,constitutes the SES index.

Social integration is different from participating in the system. Respondents were asked about the quality and quanity of assistance that each one gave to and received from their peers in the community in terms of labor, money, tools, and animals, and services in case of illnesses. Each respondent provided his annual frequencies (given and received) in each of the four subject-matters. Assuming that these items belong to the same conceptual universe of items, they were submitted to a Guttman scalogram analysis . Six of the items** combine into a perfect scale with a coefficient of reproducibility equal to .92.

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*These items had proven discriminatroy enough in several pretests previous to the collection of the data reported here.

**The two eliminated items included aid received in case of illness and in tools.

RESULTS

What are the differences among individuals scoring high and low in the patron-dependence scale? Table II shows the means that were obtained along several dimensions for the highest and lowest deciles on the PD scale*.

Within our sample of Minas Gerais farmers, patron-dependent individuals are those with low education, minimal contact with ACAR specialist, low functional literacy, lower socioeconomic status, and few cosmopolite contacts, minimal mass media exposure, low agricultural knowledge and low innovativeness, and possession of fewer cows. On the other hand, farm size, trips to large cities** and age do not differentiate between individuals with high and low patron-dependence, when the between-group variance is taken into consideration. Generalizing from Table II, for the purpose of the present sample of farmers, the uneducated, the socially isolated, the economically powerless, and the laggards will be among those that will rely more often on the decision-making abilities of those occupying superior positions in the system.

Table II shows a zero-order correlation matrix with all the variables in the present model and also serves to test the first prediction that communication is negatively associated with patron-dependence which is also negatively associated with agricultural development. As expected patron-dependences correlates negatively with both the communication variables and the variables on development. Also, according to prediction, mass media exposure, and cosmopolite

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*Low PD corresponds to a score of one or zero on a seven-item Guttman quasi-scale, and High PD corresponds to a score of six or seven which, in each case, approximated ten percent of a total sample (See Tables I and II).

**Two of the variables mentioned by van Es and Whittenbarger (1970) as potentially useful in explaining different ways of socio-political participation by different levels of "patron-client relationships".

contact, correlate positively with agricultural knowledge and agricultural innovativeness. Therefore, all the correlations are in the predicted direction, but, though levels of statistical significance are met, the amount of variance explained by them is not highly impressive.

Table III also shows how the control variables, socio-economic status and social integration, are quite independent from each other, therefore justifying the independent analysis of their effects in the relationship between PD and agricultural knowledge and innovativeness. If either of the two control variables is an intervening variable, statistically removing their effects will tend to nulify the relationship between PD and the development variables. This study shows (Table IV) that PD has its unique contribution to the relationship with agricultural knowledge and agricultural innovativeness.

To test the suppressor effect that PD has in the relationship between the extra-system communication variables and the modernization variables, the original sample of 315 subjects was stratified along the PD median in two subsamples*. Zero-order correlations between each of the two communication variables and the modernization variables were then obtained for the two subsamples of high and low PD groups. Table V shows that mass media exposure has a higher correlation with the agricultural development variables among low PD individuals than among high PD individuals, and cosmopolite contact (contrary to prediction) presents a higher degree of association with agricultural knowledge and innovativeness among high PD individuals than among low PD individuals.

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*The result being that 159 farmers were considered as high patron-dependents and 156 farmers were considered as low patron-dependents.

DISCUSSION

The present research provides mixed evidence regarding the suppressor effect of PD in the relationship between communication and agricultural development, even when it is shown that the relationship between PD and development is not affected by controls on SES and social integration.

The findings on mass media exposure behave in the predicted directions. They suggest that the content of the media is, on the average, instrumental for the modernization and development processes. Even when the mass media may not carry much information that could be directly instrumental for agricultural development (such as information leading to the adoption of innovations), exposure to the media may teach farmers about the sources for such information. The present findings tend to show that information is first assimilated by low PD farmers and then, possibly via interpersonal channels, by high PD farmers.

Cosmopolite contact, as predicted, is positively related to modernity and negatively related to patron-dependence. But, contrary to prediction (and unlike mass media exposure), among high PD individuals there is a higher association between cosmopolite contact and modernity than among low PD individuals. It seems that low patron-dependents (the ones who travel most, read most, and have better economic resources) talk more and most often with the cosmopolites in their community (who are more like themselves). These local cosmopolites do not seem however to exert any influence or act as a source for information about new ideas for low PD farmers. On the other hand, high patron-dependents might have selected contacts with the local cosmopolites, regard them as patron figures, and be influenced by the few

pro-change messages exchanged in such sparse contacts*.

The present study has emphasized firstly that; in patron-dependent societies, farmers do not make farming decisions individually. It seems that in certain less-developed countries, social structural differences affect decisions of the individual. Hodgdon and Singh (19[illegible]), in a study of the diffusion of innovations in India, show that "external" factors are much more important in explaining adoption than the individual's decision to adopt or reject the recommended innovations. Rogers (1966, p. 388) in Colombia has shown the relative importance of the patrones in adoption decisions in a particular community where 95 percent of all the arable land belonged to five large landowners. The diffusion model, developed in the U.S. with samples, assumes that individual farmers should be the unit of analysis since, in this less patron-dependent society, farmers individually make adoption decisions in most cases. But what happens in other societies where hierarchical differences may affect adoption decisions? It seems reasonable to hypothesize that under the previously-mentioned conditions, social systems with more innovative patrons (or "elites" for national analyses) will have a faster rate of adoption than systems wth less innovative patrons).

Secondly, perhaps patron-dependence is antecedent to mass communication and modernity, rather than intervening. There is both a logical and an empirical reason for this possibility (see figure 2). Logically

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*An opinion leadership index (ranging from 0.00 to 1.00), measuring the total number of nominations received divided by the number of nominations received divided by the number of interviewees in the respondents' community, produced a .16 score for the low PD group as opposed to .01 for the high PD group, which is a good validity check.

speaking, patron-dependence is more or less an enduring trait of the individual. PD, learned through the childhood socialization process, might be considered to temporarily precede media communication. Empirically speaking, only one of the two hypotheses testing the supressor effect of PD was fully supported statistically. In other words, PD seems to have a suppressor effect in the relationship between mass media exposure and the two development variables and an intervening effect in the relationships between cosmopolite contact and the agricultural development variables. Thus, we have no convincing evidence that PD intervenes between extra-system communication variables and modernity variables. In order to check the antecedent position of PD in the relationship between the independent and dependent variables, it is necessary to test the hypothesis that the relationship between PD and development is reduced when controlling for communication.

Research with the two suggested reinterpretations should also consider measurement and statistical improvement. The use of more items measuring patron-dependence can lead to a better purification of the variable*, thus avoiding possible conceptual overlappings with traditionalism. Use of more sophisticated statistical methods could lead to a clear picture of the causal inferences.

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*For instance, in-family paternalism vs. out-family patron-dependence.

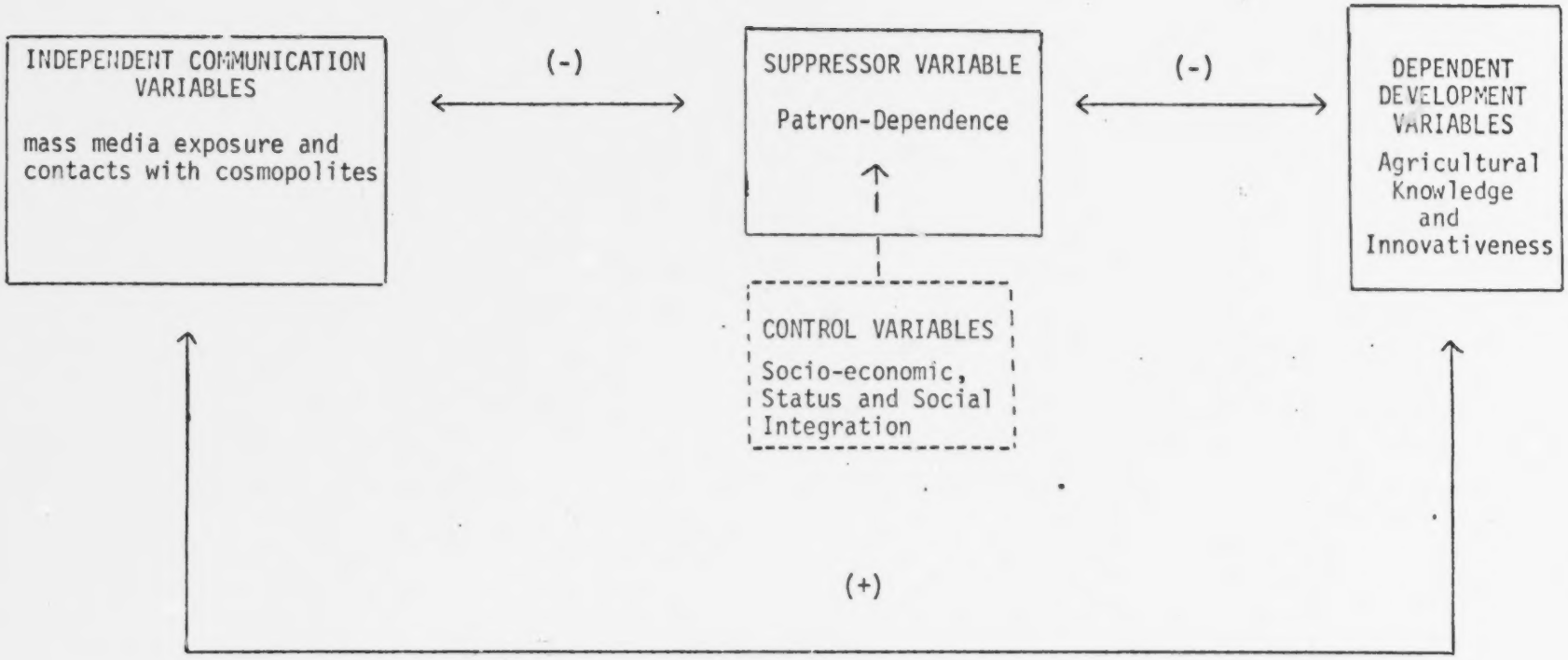

Figure 1. Model Relating Patron-Dependence to Communication and Agricultural Development.

Table I: Patron-Dependence Items, Their Marginals and Guttman Scaling Errors,(N=315).

Items	Scale Type	ITEMS* 7	6	5	4	3	2	1	Respondents in Scale Types N	%
1. Dating Chaperone	I	X	X	X	X	X	X	X	17	5.4
2. Wife's Buying Restrictions	II		X	X	X	X	X	X	19	6.0
3. Married Sons' Smoking Ristrictions	III			X	X	X	X	X	41	13.0
4. Hiring of Relative	IV				X	X	X	X	82	26.0
5. Technical Help as a Favor	V					X	X	X	68	21.6
6. Job Near Relative	VI						X	X	56	17.8
7. Sons' Occupation Selection by Father	VII							X	26	8.3
	VIII								6	1.9
									$\bar{X}$=3.5 S.D.=1.6	100.0
Percent of Respondents Agreeing with Item		26	32	38	48	55	61	77		
Number of Scaling Errors		42.0	45.0	59.5	52.5	51.5	47.0	32.5	- -For a total of 330.0 errors**	

* An X indicates agreement with the item.

**For this amount of total errors, with seven items and 315 subjects, the coefficient of reproducibility is .85. Notice that the present analysis does not include (1) consensual items with an agreement of response in either of the two extreme 20% sectors; or (2) single items filling the adjacent items' gap by less than five percent points on the marginal distribution. Inclusion of any of these two kind of items could have artificially inflated the reproducibility coefficient to scaling standards.

Table II: Characteristics of High and Low PD Individuals

Independent Variables	Means on Independent Variables		
	Low PD Respondents (N=32)	Entire Sample Means (N=315)	High PD Respondents (N=36)
Years of Age	43	44	44
Annual Trips to Large Cities	16	12	10
Years of Education	3.1	2.3	2.0
Number of Contacts with ACAR In Past-Years	11	7	4
Functional Literacy Scores *	41	30	21
Farm Size in Hectares**	78	51	38
Number of Cows Owned	20	12	7
Agricultural Knowledge Scores (0-16)	7	4	2
Socio-Economic Status Scores (0-7)	7	5	4
Interpersonal Contacts with Persons Living in Another Com. Scores (0-240)	33	29	20
Frequency of Exposure to Newspapers, Magazines, Radio, TV, & Correspondency Scores (0-40)	21.6	19.9	20.0
Standardized Agricultural Innovativeness Scores (0-99)	35	32	27

*Number of correct words read out of a standard paragraph containing 50 words.

**2.2 acres = 1 hectare or 10,000 square meters.

Table III: Zero-Order Correlation Matrix of all the Variables in the Present Study (n = 315)

	Variables	1	2	3	4	5	6
1.	Mass Media						
2.	Cosmopolite Contact	.21*					
3.	PD	-.18	-.17				
4.	SES	.62	.14	-.20			
5.	Soc. Integration	.22	.21	-.21	.09		
6.	Agricultural Knowledge	.42	.29	-.32	.39	.29	
7.	Agricultural Innovativeness	.37	.20	-.30	.43	.35	.48

* For a sample size equal to or larger than 300 respondents, a correlation higher than .10 is significant at the .05 level of confidence, one tail-test.

Table IV. Zero-Order and Partial Correlations Between Patron-Dependence and Agricultural Knowledge and Agricultural Innovativeness (N=315).

	Patron-Dependence		
	Zero-Order	First-Order Partials	
		I*	II**
Agricultural Knowledge	-.32***	-.28	-.27
Agricultural Innovativeness	-.20	-.14	-.13

*Controlling for social integration.

**Controlling for socio-economic status.

***For a sample size equal to or larger than 300 respondents, a correlation higher than .10 is significant at the .05 level, one tail-test.

Table V:

Zero-Order Correlations of the Communication Variables with the Modernity Indicators for High Patron-Dependents (N=159) and Low Patron Dependents (N=156)*, and Fisher's z for the Difference Between the Two Correlation Coefficients.

	Agricultural Knowledge			Agricultural Innovativeness		
	High PD	Low PD	Fisher z	High PD	Low PD	Fisher z
Mass Media Exposure	.17	.56	4.19**	.21	.53	3.43
Cosmopolite Contact	.39	.20	1.90	.30	.06	2.27

*The original sample of 315 subjects was stratified along the PD median in two sub-samples. For a sample size equal to or larger than 150 respondents, a correlation higher than .13 is significant at the .05 level.

**A Fisher's z equal to or higher than 1.65 is significant at the 0.5 level for a one tail-test.

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